CHAPTER 27

CONFINED SPACE ENTRY (CSE) PROGRAM (NON-MARITIME)

2701. Discussion

Confined spaces are enclosures that have limited means of entry and exit, and although they are large enough to get into, they are not designed for continuous employee occupancy. Examples include storage tanks, pits, vaults, vats, water towers, chemical reactors, process vessels, and manholes. Each year, over a million and a half workers enter confined spaces. Many are seriously injured or killed as a result of asphyxiation, electric shock, heat stress or engulfment by liquids or finely divided solids such as wood dust. Many incidents are exacerbated by ill-fated rescue attempts made by well meaning, but untrained, rescuers.

The Occupational Safety and Health Administration (OSHA) estimates that 85 percent of confined space-related incidents could have been prevented if proper precautions had been followed. Moreover, the overwhelming majority of all confined space fatalities could have been prevented if spaces had simply been tested for atmospheric hazards or ventilated prior to entry. For this reason, Navy policy is to consider all confined spaces to contain the most unfavorable and unsafe conditions. Entry into, or work in or on, such spaces is prohibited until qualified personnel have performed the tests, evaluations and prescribed procedures of this chapter to ensure that safe conditions exist and are maintained. Each installation shall develop a written, program that explains the processes, means and methods used for recognizing, evaluating and controlling potential confined space hazards, and for communicating information concerning those hazards to employees.

This instruction explains the minimum requirements for an acceptable written, site-specific confined space program. It incorporates the requirements of those standards, codes, rules and regulations outlined in Appendix B. In situations where a conflict exists, the most restrictive requirement prevails.

2702. Applicability

a. The provisions of this chapter apply to all Navy shore non-maritime commands.

b. Naval maritime facilities such as naval shipyards, Ship Repair Facilities (SRFs), Intermediate Maintenance Facilities (IMFs), Shore Intermediate Maintenance Activities (SIMAs), Trident Refit Facilities (TRFs), and other Navy commands whose primary mission is shipbuilding, ship repair, or ship breaking are governed by reference 27-1.

c. Navy shore non-maritime commands (e.g., PWC or FISC) performing facilities-related confined space work ashore within a facility identified in subparagraph 2702.b shall comply with this chapter, except that a certified NFPA Marine Chemist or Board certified Navy GFE shall be used as required by reference 27-1. For those situations where non-maritime commands perform confined space work at naval maritime facilities and occupy the same confined space with naval maritime facility employees, entry procedures shall be developed and managed by the cognizant Navy GFE.

d. Navy shore non-maritime commands performing ship repair operations shall comply with reference 27-1, except that the Confined Space Program Manager (CSPM) may provide man-

agement of the applicable reference 27-1 requirements, and perform or designate other personnel to perform duties limited to those of a Navy Competent Person (formerly known as Gas Free Technician). Personnel performing Navy Competent Person duties must have completed the training and OJT specified in reference 27-1, except that the amount of experience in a maritime facility and the amount of OJT may be limited to the appropriate types of confined space operations performed by the activity as determined by the CSPM. A certified NFPA Marine Chemist or Board Certified Navy GFE shall still be used as required by reference 27-1.

2703. Program Management

a. Regional commanders, commanding officers, or officers in charge are ultimately responsible for all safety and health issues at their installations. In cooperation with other members of their management team, they shall provide continuing support, both motivational and financial; to ensure that an installation's confined space entry program remains effective. They shall appoint, in writing, a qualified CSPM.

b. The CSPM, in cooperation with line managers, supervisors, and employees, shall manage all facets of the installations confined space entry program, and has full authority to make necessary decisions to ensure the program's continued success. The CSPM is the only person authorized to amend an installation's confined space program

c. The CSPM shall successfully complete course number A-493-0030, Confined Space Safety, (formally OSH 245E Gas Free Engineering for Non-Maritime Operations) conducted by the Naval Occupational Safety and Health and Environmental Training Center (NAVOSHENVTRACEN), or equivalent. The cognizant headquarters command OSH manager must approve equivalent training. The command OSH office shall keep verification of such training on file along with the written appointment to the position. In addition to formal classroom training, the command shall establish a proficiency program to ensure that CSPMs possess the understanding, knowledge, and skill necessary for the safe performance of their duties. This can be accomplished by having the program audited by a CSPM from another activity.

d. The CSPM shall use additional personnel to perform duties in support of the confined space program. The CSPM has the authority to designate other qualified persons to assist in the day-to-day management and implementation of the confined space program as follows:

(1) Assistant Confined Space Manager (ACSPM). The ACSPM may be authorized to perform duties equivalent to those of the CSPM and shall meet the same qualifying criteria. The CSPM must designate the ACSPM in writing.

(2) Qualified Person (QP). QP duties are limited to performing atmospheric testing in confined spaces and inspecting for physical hazards. If the space does not contain, or have the potential to contain, any atmospheric or serious physical hazard, the QP may reclassify the space as "non-permit required". If the space contains hazards that cannot be eliminated, its classification will remain "permit required" and the QP shall contact the CSPM or ACSPM to inspect and provide an entry permit. If authorized, the QP may also conduct follow-up inspections and atmospheric testing on permit required spaces after initial permits were issued by the CSPM/ASCPM. CSPM or ACSPM shall conduct/coordinate the formal classroom/ proficiency training for personnel assigned duties as a QP and appoint the QP in writing. Training shall include the proper use, maintenance, calibration, and operational check of equipment being used. In addition, training shall include requirements and provision of this chapter as it relates to the

QP responsibilities, procedures for testing atmospheric hazards, recognition and control of hazards related to confined spaces, responsibilities of personnel entering and working in confined spaces and emergency procedures.

e. Tenant commands and/or shore installations participating in a regional OSH program may have the regional CSPM manage and administer the program through a written agreement signed by both parties.

f. Individual employees are responsible for fully understanding the installation's confined space program and for complying with its procedures and policies.

2704. Duties and Responsibilities

a. CSPM's duties and responsibilities include, but are not limited to:

(1) Ensuring, to the extent feasible, that surveys of the installation are conducted to identify existing and potential confined spaces

(2) Ensuring, to the extent feasible, that the hazards associated with each identified confined space are characterized to the extent necessary to minimize losses

(3) Reviewing and approving the purchase of equipment required for confined space entry

(4) Auditing the training of those employees involved in confined space entry to assure that they are able to demonstrate proficiency in the requirements of the installation's confined space program

(5) Auditing line managers, supervisors and designated QPs to verify that they continue to demonstrate proficiency in the discharge of their duties and responsibilities related to confined space entry

(6) Ensuring, to the extent feasible, that effective procedures for managing confined space entry work performed by independent contractors are in place

(7) Ensuring, to the extent feasible, that entry permits/entry certificates are reviewed on a periodic basis sufficient to allow identification of problems that could compromise the confined space entry program, and to assure that identified deficiencies are investigated and corrected prior to subsequent entry into the installation's confined spaces

(8) Determining when it is necessary to obtain the assistance of outside professional resources.

b. Supervisor's duties and responsibilities include, but are not limited to:

(1) Ensuring that workers under their control who enter confined spaces are informed of the hazards to which they may be exposed and have demonstrated proficiency in the skills necessary to protect themselves from those hazards.

(2) Ensuring that all special equipment required for entry is available and in proper working order

(3) Determining that training in both confined space procedures and the use of any specialized equipment has been provided, and that employees under their control who enter confined spaces, have demonstrated proficiency in the application of those procedures specialized equipment

(4) Auditing the work performed by employees under their control who enter confined spaces to assure that it conforms to this program as well as those programs integrated into it, such as lock-out/tag-out, respiratory protection, bloodborne pathogens, etc.

(5) Informing the CSPM of any unauthorized digressions from the installation's confined space program or any problems that arise during confined space entry

c. Individual employees' duties and responsibilities include, but are not limited to:

(1) Participating in the development of the installation's site specific confined space program

(2) Minimizing their exposure to potentially hazardous conditions

(3) Notifying their supervisors of any recognized uncontrolled hazards

(4) Interceding with coworkers to stop inappropriate or hazardous behaviors that may result in injury or property damage

(5) Not using defective equipment, and reporting defects to their supervisors

(6) Inquiring about the potential hazards to which they may be exposed to ensure that they know and understand the precautions they must take to protect themselves from those hazards

(7) Using equipment and conducting themselves in a manner consistent with the training they have received.

2705. Entry Options

Three options are available with respect to entry into permit-required confined spaces:

a. Reclassifying a permit-space as a non-permit space by eliminating all entry-related hazards as explained in section 2723.

b. Implementing alternative entry procedures that require continuous forced mechanical ventilation and continuous air monitoring in situations where the only hazard posed is an atmospheric hazard which can be controlled by ventilation, as explained in section 2724.

c. Establishing a permit-entry procedure, as explained in section 2725,that includes provisions for:

(1) Designating authorized entrants, authorized attendants, and authorized entry supervisors as described in section 2726.

(2) Implementing a process for issuing, canceling, reviewing and archiving written entry permits as described in section 2726.

(3) Providing for emergency rescue services as described in section 2728.

(4) Implementing, if necessary, procedures for entry into atmospheres that are immediately dangerous to life or heath (IDLH), as described in section 2729.

2706. Administrative Policy

a. As a matter of administrative policy, all shore-side confined spaces, other than those associated with new construction activities, tunneling operations, trenching and excavating, telecommunications, and electrical generation, distribution, and transmission shall be permit-required confined spaces.

b. Personnel may enter permit-spaces only per the provisions of a written confined space program that explains the processes, means, and methods used to achieve compliance with this instruction. However, the ACSPM or QP may declassify a permit-space per the provisions of section 2723 or allow entry into a permit-space under the alternative entry procedures described in section 2724.

NOTE:

Locally generated confined space entry permits shall contain, at minimum, the required items found in 29 CFR 1910.146 (f).

c. Every entry into a permit-required confined space must be documented on a confined space permit/entry certificate like that in appendix C, or on an equivalent permit/certificate that is designed and formatted to addresses site-specific issues, conditions or concerns.

2707. Program Content

The CSPM, or other designated qualified person responsible for confined space program management, shall consult with affected employees and their authorized representatives on the development of a written confined space program. The program shall describe with reasonable specificity the processes, means and methods by which the installation manages its entries into confined spaces.

2708. Identification of Confined Spaces

The written program shall describe the process the installation employs to identify on-site confined spaces and poorly ventilated enclosed spaces. The process must ensure that both permit and non-permit spaces are identified. This includes mobile, portable and transient confined spaces such as those imparted by aircraft, pollution control equipment, rail tank cars, highway tank trucks, and similar shipping containers.

2709. Hazard Analysis and Risk Communication

The written program must describe the process, means, and methods the installation uses to inform affected employees of the:

a. Existence and location of confined spaces and poorly ventilated enclosed spaces

b. Nature of the potential hazards posed by confined spaces and poorly ventilated enclosed spaces

c. Prohibition against entering confined spaces and poorly ventilated enclosed spaces unless special precautions are taken and an entry permit is completed.

2710. Preventing Unauthorized Entry

The written program shall describe the site-specific processes, means and methods that are used to prohibit unauthorized entrants from entering confined spaces. These methods may include any combination of the following:

a. Verbal notification,

b. Posting warning signs,

c. Stickers or labels,

d. Limiting access through the use of key cards, cipher locks, cylinder locks; tack welding the edges of the cover to the body of the enclosure, the need for a special tool, or any other equally effective means used in lieu of signs, stickers and/or labels.

2711. Pre-Entry Precautions

a. The written program shall explain the site-specific process used to identify any precautions, work practices, or controls that need to be implemented before entry. At a minimum, the program shall address the following, if applicable to the installation's operations:

(1) Conducting a job-specific hazard analysis

(2) Limiting access to the work area

(3) Controlling hazardous energy

(4) Providing effective isolation

(5) Draining, flushing and cleaning

(6) Testing and monitoring

(7) Controlling atmospheric hazards

(8) Controlling physical hazards

(9) Assessing protective equipment needs

(10) Emergency response planning

(11) Determining if entry conditions are acceptable.

b. The written program shall identify any specialized equipment necessary to accomplish the tasks specified above. It shall also include provisions that the activity shall provide this equipment to employees at no cost and shall maintain the equipment to ensure its continued effectiveness.

2712. Job-Specific Hazard Analysis

All hazards associated with entry must be identified and noted on the permit before a space is entered. The written program shall describe the process for conducting a job specific hazard analysis used to achieve this objective, and a requirement that any hazards, including those that have been controlled or eliminated, be identified on the permit so that the hazard information may be communicated to affected employees.

2713. Limiting Unauthorized Access

Access to a confined space work zone must be limited to authorized employees. The written program shall describe the means and methods used to achieve this objective.

2714. Controlling of Hazardous Energy

Energy that poses a hazard to authorized entrants must be controlled to the extent feasible through disconnecting, blocking or otherwise disabling equipment whose unexpected start up could cause injury, or alternatively, by implementing a lock-out/tag-out program, that at a minimum meets the requirements of 29 CFR 1910.147. If reference is made to the facilities lock-out/tag-out program, the CSPM shall ensure that the lockout/tagout procedures are incorporated in the procedures used for confined space entry.

2715. Providing Effective Isolation

a. Isolation is the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes, or ducts; providing a double block and bleed system; locking- or tagging-out of all sources of energy; or blocking or disconnecting all mechanical linkages.

b. The written program shall either describe the process used to achieve isolation, or refer to the facilities general isolation program. If reference is made to the installation's program, the CSPM must evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2716. Draining, Flushing and Cleaning

a. Spaces may contain residue that is flammable, corrosive, toxic or otherwise hazardous to entrants. The written program shall describe the process used to identify these hazards and explain how they may be eliminated or controlled prior to entry.

b. The written program shall incorporate a provision that the installation's cognizant environmental representative shall be notified to evaluate any space that is to be drained, flushed, or rinsed. This evaluation must identify any **specific** Federal, State, and/or local environmental codes, standards, rules, regulations, or statutes that apply to the draining, flushing rinsing, and waste disposal processes.

2717. Testing and Monitoring

a. This section shall explain the installation's process for identifying hazards that may require testing and monitoring, and describe the means and methods by which this testing and monitoring is to be conducted. At a minimum, the written program shall address:

(1) Testing and monitoring of non-atmospheric hazards

(2) Testing and monitoring of atmospheric hazards

(3) Identifying factors affecting instrument selection

(4) Sampling strategies, methods and techniques

(5) Establishing instrument alarm set points

(6) Interpreting testing and monitoring results

(7) Establishing acceptable entry conditions

(8) Establishing maintenance and calibration protocols

(9) Requiring continuous monitoring when feasible

(10) Appropriate selection and proper calibration of instruments.

b. The written program, shall also describe the process by which authorized entrants or their authorized representatives are provided with the opportunity to observe the pre-entry and any subsequent testing or monitoring of permit spaces.

2718. Control Of Atmospheric Hazards

a. Written confined space programs shall stipulate that atmospheric hazards be controlled to the extent feasible through forced, mechanical ventilation. If the CSPM or other designated qualified person determines that ventilation is not effective for controlling atmosphere hazards, he/she shall require respiratory protection. Personnel entering the space shall use air-supplied

respirators unless the CSPM or other designated qualified person determines that air-purifying devices are acceptable.

b. The following is the minimum standard when evaluating for atmospheric hazards:

(1) A flammable gas, vapor, or mist shall be lower than 10 percent of its lower explosive limit (LEL). Hot work may only be performed if the source of the gas, vapor, or mist has been determined and adequately controlled below 10% of the LEL.

Note: Even though the atmosphere is controlled to concentrations lower than 10% LEL, the CSPM or designated qualified person must ensure the measured LEL of a particular gas, vapor, or mist does not also exceed the PEL.

(2) The atmospheric oxygen concentration shall not be below 19.5 percent or above 22 percent;

(3) The Permissible Exposure Limit of any substance is not exceeded.

2719. Control of Physical Hazards

Physical hazards associated with confined space entry include: environmental hazards such as heat and cold stress, ionizing and non-ionizing radiation and noise; equipment-related hazards such as unguarded machinery and exposed energized conductors; and task-related hazards such splash with corrosive materials, contusions from impacts, and lacerations from sharp edges. The written program shall describe the process used to manage entrants' exposure to physical hazards.

2720. Assessing Protective Equipment

The CSPM/ACSPM, in coordination with a safety specialist and/or industrial hygienist, shall determine the requirements for appropriate personal protective clothing and equipment. See chapters 15 and 20 of this manual for specific requirements. The CSPM/ACSPM shall list required clothing and equipment on the entry certificate. The written program shall either describe the process used to assess the need for personal protective equipment, or refer to the installation's personal protective equipment program. If reference is made to the installation's program, the CSPM or other designated qualified person shall evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry.

2721. Emergency Response Planning

An emergency is any occurrence, including any failure of hazard control or monitoring equipment, or event internal or external, to a permit space that could endanger entrants. The written program shall explain the process for developing an emergency response plan that addresses the unique nature of each entry.

2722. Determining If Entry Conditions Are Acceptable

While precautions such as barricading, ventilating, controlling hazardous energy, and conducting atmospheric testing may be taken for entry into many confined spaces, each entry is unique. Consequently, a variety of variable parameters shall be used to establish whether or not conditions are suitable for entry. The written program shall describe the process for identifying what conditions are deemed to be acceptable for entry.

2723. Reclassification Procedures

If a permit space poses no actual or potential atmospheric hazards, and if all the other hazards within the space are eliminated without entry into the space, the permit space may be reclassified as a non-permit confined space for as long as the non-atmospheric hazards remain eliminated. If it is necessary to enter the permit space to eliminate hazards, that entry shall be performed per section 2724.

The written program for any installation that decides to reclassify a permit space shall describe the process used for reclassification. At a minimum this process shall include provisions for:

a. Explaining the basis for determining that the permit space poses no actual or potential atmospheric hazards and that all other hazards can be eliminated without the need to enter

b. Issuing an “entry certificate” that contains the date, the location of the space, atmospheric test results, and the signature of the person making the determinations described above

c. Making sure an “entry certificate” is made available and posting it at the site so that each employee entering the space or the employee's authorized representative can be informed of the hazards and conditions of the space.

d. Evacuating the space if hazards arise, and reevaluating the space to determine if it must be reclassified as a permit space.

e. The entry certificate is only valid for a period of time as determined by the CSPM.

f. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735

2724. Alternative Entry Procedures

Less stringent entry procedures that do not require a permit, an attendant, an entry supervisor, or rescue provisions, may be used in situations where the only hazard posed is an atmospheric hazard that can be controlled through continuous, forced, mechanical ventilation.

The written program for any installation that decides to enter permit spaces under the alternate entry procedure shall describe the process for implementing that procedure. At a minimum, this process shall include provisions for ensuring that:

a. An explanation of the basis for determining that the permit space poses only an atmospheric hazard is provided.

b. An explanation of the basis for determining that the hazard can be controlled though continuous forced ventilation is provided.

c. Any conditions that make it hazardous to remove an entrance cover are eliminated before the cover is removed.

d. When entrance covers are removed, a railing, temporary cover, or other temporary barrier that prevents an accidental fall through the opening and protects employees from foreign objects entering the space promptly guards openings.

e. Before employees enter the space, the internal atmosphere is to be tested, with a calibrated, direct-reading instrument, for oxygen content, flammable gases and vapors, and potential air contaminants.

f. Any employee who enters the space, or that employee's authorized representative, is provided an opportunity to observe the pre-entry testing.

g. A hazardous atmosphere does not exist in the space whenever it is occupied.

h. Continuous forced ventilation is provided and used.

i. Employees do not enter the space until the ventilation has eliminated any hazardous atmosphere.

j. The ventilation air is provided by a clean source and does not increase the hazards in the space.

k. The air is delivered in a manner that ventilates the immediate areas where employees are present within the space.

l. The ventilation is continued until all employees have left the space.

m. The atmosphere within the space shall be monitored continuously with a direct reading instrument to ensure that the continuous forced air ventilation is preventing the accumulation of a hazardous atmosphere, unless the CSPM or other designated qualified person determines that such monitoring is unnecessary. Atmospheric testing results shall be documented with the date and time of test. Test results shall be kept with the entry certificate.

n. A written entry certificate is issued that contains the date, the location of the space, and the signature of the person providing the certification. The certification shall be made before entry and shall be made available to each employee entering the space, or to that employee's authorized representative.

o. When there are changes in the use or configuration of a non-permit space that might increase the hazards to entrants, the space is reevaluated and if necessary, reclassified as a permit-space.

p. If a hazardous atmosphere is detected during entry, employees shall immediately evacuate, and the space shall be evaluated to determine how the hazardous atmosphere de-

veloped, and procedures shall be implemented to protect employees from the hazardous atmosphere before any subsequent entry takes place.

q. Canceled entry certificates shall be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735.

2725. Permit-Required Program Elements

If a permit-space cannot be reclassified as explained in section 2723, or cannot be entered under the alternate entry procedures described in 2724, it shall be entered under the auspices of a written, site-specific, entry permit procedure, which at a minimum, describes the process for:

a. Issuing, canceling, reviewing and archiving entry permits.

b. Designating employees authorized to participate in the entry, including entrants, attendants, and entry supervisors.

c. Rescue response planning, including the process used to identify, evaluate, and select a rescue service provider.

d. Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

2726. Permit System

The written program shall include an explanation of the process used for issuing, canceling, reviewing and archiving entry permits. The process shall include provisions that require that:

a. The supervisor sign the permit indicating that all specified precautions have been taken, that conditions are acceptable for entry as explained in section 2722 and that authorized entrants may proceed into the space.

b. The duration of the permit does not exceed one shift or the time required to complete the assigned task or job identified on the permit, whichever is less.

c. Completed permits be made available at the time of entry to all authorized entrants or their authorized representatives, by posting at the entry portal or by any other equally effective means, so that the entrants can confirm that pre-entry hazards have been controlled. Any problems encountered during an entry must be noted on the permit so that appropriate revisions to the confined space program can be made.

d. Canceled permits be retained for at least 1 year to facilitate the review of the permit-required confined space program required by section 2735. Permits that contain atmospheric testing information that constitutes an employee exposure record shall be maintained for the employee's duration of employment plus 30 years as stipulated by 29 CFR 1910.1020.

2727. Designation of Employees

The written program shall describe the process used to designate confined space entrants, attendants, supervisors, and entry. Duties and responsibilities for these individuals are described in appendix A.

2728. Rescue Procedures

The written, site-specific plan shall describe the process used to:

a. Identify credible scenarios that may require rescue

b. Identify potential providers of rescue services

c. Evaluate the capabilities of potential rescue service providers to assure that they are capable of providing timely rescue services consistent with the nature of the anticipated emergencies, and are in fact able to rescue incapacitated entrants from the space

d. Develop procedures for summoning rescue services

e. Provide necessary aid to rescued employees.

2729. Procedures For Entry Into IDLH Atmospheres

Entry into, work in, or on a confined space that is immediately dangerous to life and health (IDLH) shall not be permitted under normal operations and is only authorized in cases of rescue efforts and extreme emergencies. The written program shall describe the site-specific procedures that are followed when entry must be made into spaces that are immediately dangerous to life and health (IDLH). These procedures shall include provisions for ensuring that:

a. Installation commanders or their designees are notified, specifically to authorize the entry into the IDLH atmosphere and provide necessary assistance appropriate to the situation.

b. One employee or, when needed, more than one employee, is located outside the IDLH atmosphere during entry.

c. Visual, voice, or signal line communication is maintained between the employees in the IDLH atmosphere and those located outside the IDLH atmosphere.

d. The employees located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue.

e. Employees located outside the IDLH atmospheres are equipped with:

(1) Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA

(2) Appropriate retrieval equipment for removing the employees who enter these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employees and would not increase the overall risk resulting from entry; or provide equivalent means for rescue where retrieval equipment is not feasible.

f. In the case of a potentially flammable atmosphere, all ignition sources are prohibited.

2730. Hot Work

Hot work includes all flame heating, welding, torch cutting, brazing, carbon arc gouging or any work which produces heat, by any means, of 400 degrees F (204 degrees C) or more, and, in the presence of flammables or flammable atmospheres, other ignition sources such as spark or arc producing tools or equipment, static discharges, friction, impact, open flames or embers, and non explosion proof lights, fixtures, motors or equipment. The written program shall either describe the process used to control hazards associated with hot work, or refer to the installation's hot work program. If reference is made to the installation's hot work program, the CSPM shall evaluate that program to determine if it meets the requirements necessary to allow it to be used for confined space entry. Minimum work practices that the hot work program shall address are described in chapter 5 of reference 27-1.

2731. Special Processes

Processes such as, but not limited to, spray application of flammable or combustible materials, abrasive blasting, and pressure-washing pose special hazards. An installation that performs these tasks shall develop a job-specific hazard analysis that addresses the unique hazards posed by each of these processes.

2732. Employee Training

Employees who enter confined spaces shall possess the understanding, knowledge, and skill necessary for the performance of their duties. The written program shall explain the process the installation uses to ensure that employees are trained and have demonstrated proficiency in confined space entry.

2733. Contractor Management Provisions

a. Whenever contractors perform work in an installation's confined spaces, the job shall be coordinated so that neither the contractor nor the installation's employees jeopardize each other's safety. The written program shall describe the process for managing work contractors perform in the installation's confined spaces. At no time shall contractor personnel enter a confined space under the installation's permit or certification. If contractor personnel and Navy personnel occupy the same space certification shall be for Navy personnel only and stated so on the permit or certificate.

b. At a minimum the written program shall include provisions that stipulate that the party responsible for requesting that the contract work be performed is personably responsible for ensuring that the work is carried out per the contract provisions. The written program shall also describe the installation's process for:

(1) Informing the contractor that the installation contains permit spaces

(2) Explaining to the contractor why a space is considered to be a permit-space

(3) Sharing knowledge of the hazards that have been identified through experience with the space

(4) Informing the contractor that their personnel may only enter permit-spaces under the provisions of the installations written program

(5) Apprising the contractor of any precautions or procedures that the installation has implemented for the protection of employees in or near permit spaces where contractor personnel will be working (for example draining, flushing, isolating, etc.)

(6) Coordinating entry operations with the contractor, so that contractor and installation employees do not compromise each other's safety

(7) Debriefing the contractor at the conclusion of the entry relative to any hazards confronted or created during entry operations.

c. The written program shall include a provision that describes the installation’s process for determining if the contractor’s written program addresses at least the following elements as applicable to the specific job to be performed:

(1) Conducting a job-specific hazard analysis

(2) Limiting access to the work area

(3) Controlling hazardous energy

(4) Providing effective isolation

(5) Draining, flushing and cleaning

(6) Testing and monitoring

(7) Controlling atmospheric hazards

(8) Controlling physical hazards

(9) Assessing protective equipment needs

(10) Determining if entry conditions are acceptable

(11) Issuing, canceling, reviewing and archiving entry permits

(12) Designating of employees authorized to participate in the entry including entrants, attendants and entry supervisors

(13) Emergency planning, including identifying, evaluating and selecting rescue services

(14) Establishing procedures for entry into atmospheres that are immediately dangerous to life or health.

d. The written program shall also describe the process that will be followed in the event that the CSPM or other designated qualified person determines that the contractor's program does not address one of the elements listed above. The contractor shall correct this deficiency before the installation allows work to proceed.

2734. Precautions for Specific Operations

a. Specific regulatory provisions govern construction activities including underground construction and trenching; telecommunications work; and work involving the generation, distribution and transmission of electricity.

b, Construction Operations

(1) Even though the OSHA permit-required confined space standard does not apply to construction work, construction contractors shall comply with generally accepted industry procedures, practices and standards covering entry into confined spaces. To that end, construction contractors who enter confined spaces at naval facilities shall have a written confined space program that meets the minimum requirements prescribed by this instruction.

(2) A construction contractor may use its existing generalized confined space entry program, provided that it is supplemented by other documentation that describes how it intends to manage the job-specific hazards. In addition, as stipulated by OSHA standard 29 CFR 1926.21(b)(2) each construction contractor shall have a designated competent person as defined by 29 CFR 1926.32(f) who is responsible for making regular and frequent inspections of the job sites. For all ROICC contracts, military construction contracts, contractors must follow guidelines provided in EM-385-1 U.S. Army Corps Of Engineers Safety And Health Requirements Manual for working in confined spaces as well as 29 CFR 1926 Construction Standards.

c. Trenches and Excavations**.** Although trenches and excavation appear to meet the definition of a permit-space, specific trenching and excavation regulations more appropriately address the hazards they pose. However, since hazards posed are similar to those associated with confined space entry, procedures must exist that address such things as atmospheric testing, ventilation, and emergency response planning. A separate site-specific trenching and excavation policy rather then the installation's confined space program should address entry into trenches and excavations.

d. Underground Construction

(1) This section applies to the construction of underground tunnels, shafts, chambers, and passageways. It also applies to cut-and-cover excavations, which are both physically connected to ongoing underground construction operations within the scope of this section, and covered in such a manner as to create conditions characteristic of underground construction.

(2) A separate site-specific tunneling and excavation policy rather than the installation's confined space program should address working involving tunneling and other underground construction activities excavations.

e. Aircraft (ACFT) Fuel Cells

(1) ACFT fuel cell entry often presents unique entry requirements. Installations shall acquaint personnel with the fuel cell associated with each type, model, and series. ACFT or fuel cell configuration on which they will be providing confined space services. All elements of this instruction apply to ACFT confined space entry.

(2) A previously certified rubber fuel cell, which has been removed from the aircraft, may be reclassified as requiring no certificate if testing and inspection demonstrate that the hazards within the fuel cell have been eliminated. This applies only to rubber fuel cells that have been removed from the ACFT. It does not apply to installed rubber fuel cells or drop tanks.

(3) Only the Naval Air Systems Command (NAVAIRSYSCOM) (PMA 260) approved gas detectors shall be used to obtain required test readings of the atmosphere in a fuel cell.

f. Telecommunication, and Electrical generation, distribution and transmission

This section applies to operation conducted in manholes, un-vented vaults or any other confined space covered under 29 CFR 1910.268 and 269.

g. Confined space operations conducted on a Naval Maritime Facility or ship repair operations at any location

(1) The requirements of subparagraphs 2702.c and 2702.d shall be followed, except that if a space contains or has contained liquids, gases, or solids that are toxic, corrosive, or irritant and cannot be ventilated to within the PELs or is IDLH, a certified NFPA Marine Chemist, a Board-Certified Navy GFE, or Certified Industrial Hygienist must re-test the space until the space can be certified SAFE FOR ENTRY or SAFE FOR ENTRY WITH PPE. In such case, the Certified Industrial Hygienist also may provide the certification.

(2) In situations that apply to paragraph 2702.c, the CSPM or designated representative shall be trained and knowledgeable of reference 27-1 procedures that are applicable to the operations being performed.

2735. Program Evaluation

The CSPM or other designated qualified person shall evaluate the effectiveness of the installation's confined space program at least annually and whenever there is reason to believe that the program may not providing adequate protection to employees. The purpose of this evaluation is to identify program deficiencies and correct them before authorizing subsequent entries. The site-specific written program shall describe the process used for conducting and reviewing the installation's confined space program.

Chapter 27

References

27-1 Gas Free Engineering Manual, NAVSEA S6470-AA-SAF-010 REV 01, 1 Sept 99

Appendix 27-A

Designation of Employees

1. **Supervisors.** Supervisors shall cancel permits if a condition not allowed under the permit arises in or near the permit space and remove unauthorized individuals who enter or who attempt to enter the permit space during entry operations. Consequently, they shall either remain at the space for the duration of entry, or they must transfer that authority to a new attendant. The latter is possible only if the new attendant possesses the requisite knowledge and skill to act as the supervisor under conditions present at the time of the entry. The supervisors' duties and responsibilities shall include:

a. Knowing the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposures

b. Verifying, by checking the permit, that all tests the permit specifies have been conducted and that all procedures and equipment the permit specifies are in place before endorsing the permit and allowing entry to begin

c. Terminating the entry and canceling the permit when the entry operations covered by the permit have been completed, or when a condition that is not allowed under the entry permit arises in or near the permit space

d. Verifying that rescue services are available, and that the means for summoning them are operable

e. Removing unauthorized individuals who enter or who attempt to enter the permit space during entry operations.

f. Determining, whenever responsibility for a permit space entry operation is transferred, and at intervals dictated by the hazards and operations performed within the space, that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.

2. Authorized Attendants. Authorized confined space attendants shall:

a. Know the hazards that entrants may face during entry, including information on the mode, signs or symptoms, and consequences of exposure.

b. Be aware of possible behavioral effects in authorized entrants.

c. Keep an accurate count of authorized entrants in the permit space and ensure that any means used to identify authorized entrants such as a badge-in/ badge-out board is accurately maintained.

d. Remain outside the permit space during entry operations until relieved by another attendant.

e. Communicate with authorized entrants as necessary to monitor their status and to alert entrants of the need to evacuate the space

f. Monitor activities inside and outside the space to determine if it is acceptable for entrants to remain in the space.

g. Order entrants to immediately evacuate the space under any of the following conditions:

(1) A prohibited condition is detected.

(2) Behavioral effects associated with potential hazards to which entrants may be exposed are observed.

(3) A situation develops outside the space that could endanger the entrants.

(4) The attendant cannot effectively and safely perform all the required duties.

h. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.

i. Take the following actions when unauthorized persons approach or enter a permit space while entry is underway:

(1) Warn the unauthorized persons that they must stay away from the permit space.

(2) Advise the unauthorized persons that they must exit immediately if they have entered the permit space.

(3) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.

j. Perform non-entry rescues as specified by the rescue procedure.

k. Perform no duties that might interfere with their primary duty to monitor and protect the authorized entrants.

3. Authorized Entrants. Authorized confined space entrants shall:

a. Know the hazards they may face during entry, including information on the mode, signs or symptoms, and consequences of the exposure;

b. Be able to demonstrate proficiency with any equipment they are expected to use, including under emergency conditions such as equipment failure.

c. Communicate with the attendant as necessary to enable the attendant to monitor their status, and to enable the attendant to alert them of the need to evacuate the space if necessary.

d. Alert the attendant whenever:

(1) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.

(2) The entrant detects a prohibited condition.

e. Exit the space as quickly as possible whenever:

(1) An order to evacuate is given by the attendant or the entry supervisor.

(2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation.

(3) The entrant detects a prohibited condition.

(4) An evacuation alarm is activated.

Appendix 27-B

Standards Incorporated by Reference

Occupational Safety and Health Administration

Government Printing Office http://www.gpo.gov

General Industry Standard 29 CFR 1910

Shipyard Industry Standard 29 CFR 1915

Construction Industry Standards 29 CFR 1926

National Fire Protection Association
Battery March Park
Quincy, MA
http://www.nfpa.org

American National Standards Institute

Instrument Society of America

American Petroleum Institute
Washington, DC
http://www.api.org

EM-385-1 U.S. Army Corps of Engineers Safety and Health Requirements Manual

Appendix 27-C
Entry Permit/Certificate Minimum Requirements

Confined space entry permit/certificate must minimally contain the following information per 29 CFR 1910.146:

(1) The permit/confined space entered.

(2) The purpose of the entry.

(3) The date and the authorized duration of the entry permit/certificate.

(4) The authorized entrants within the permit space, by name or by such other means (for example, through the use of rosters or tracking systems) as will enable the attendant to determine quickly and accurately, for the duration of the permit, which authorized entrants are inside the permit space.

NOTE:

This requirement may be met by inserting a reference on the entry permit as to the means used, such as a roster or tracking system, to keep track of the authorized entrants within the permit space.

(5) The personnel, by name, currently servings as attendants.

(6) The individual, by name, currently serving as entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry.

(7) The hazards of the permit space to be entered.

(8) The measures used to isolate the permit space and to eliminate or control permit space hazards before entry;

NOTE:

Those measures can include the lockout or tagging of equipment and procedures for purging, inerting, ventilating, and flushing permit spaces.

(9) The acceptable entry conditions.

(10) The results of initial and periodic tests performed, accompanied by the names or initials of the testers and by an indication of when the tests were performed.

(11) The rescue and emergency services that can be summoned and the means (such as the equipment to use and the numbers to call) for summoning those services.

(12) The communication procedures used by authorized entrants and attendants to maintain contact during the entry.

(13) Equipment, such as personal protective equipment, testing equipment, communications equipment, alarm systems, and rescue equipment, to be provided for compliance with this section.

(14) Any other information whose inclusion is necessary, given the circumstances of the particular confined space, in order to ensure employee safety.

(15) Any additional permits, such as for hot work that have been issued to authorize work in the permit space.

(16) Include section for reclassification/or alternative entry procedure to allow for explanation for basis of downgrading the permit for personnel entry.